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HARDS SKILLS VS SOFT SKILLS

WHAT DO WE MEAN BY HARD SKILLS?

- Hard skills are teachable abilities or skill sets that are easy to measure.
- Skills that we learn in the classroom, via books, training programs or on the job-training
- Technical skills that we acquire through studies and experience.

Examples of hard skills:

⇒ Proficiency in a foreign language

⇒ Having a university degree or certificate.

⇒ Mastering computer programming languages

IMPORTANT HARD SKILLS FOR AN ENGINEER

- There are several different branches of engineering, each with distinct technical skill sets.. Within a given field, credentials and expectations may vary significantly among these various fields of engineering. Some hard skills are common among different branches, such as mathematics physics, and English language proficiency, as all engineers should master these skills.

BASIC HARD SKILLS REQUIRED FOR AN INDUSTRIAL ENGINEER

- **Production and Processing** - Knowledge of raw materials, production processes, quality control, costs, and other techniques for maximizing the effective manufacture and distribution of goods.

- **Mathematics** - Knowledge of arithmetic, algebra, geometry, calculus, statistics, and their applications.

- **Mechanical** - Knowledge of machines and tools, including their designs, uses, repair, and maintenance.

- **Design** - Knowledge of design techniques, tools, and principles involved in production of precision technical plans, blueprints, drawings, and models.

- **English Language** - Knowledge of the structure and content of the English language including the meaning and spelling of words, rules of composition, and grammar.

BASIC HARD SKILLS REQUIRED FOR AN ELECTRICAL ENGINEER

- **Circuit designing** – Debug, synthesize, and analyze electrical circuits.
- **Knowledge of software packages** such as Orcad, P Spice, and Eagle.
- **Ability to use instrumentation and take electrical measurements**
- **Testing, reading, construction, and design** of electrical machinery.
- **Designing and fabricating** power electronic circuits.
- **Knowledge of micro-controllers** such as 8051, ARM, AVR, PIC

BASIC HARD SKILLS REQUIRED FOR A MECHANICAL ENGINEER

- **Problem Solving:** A portion of every mechanical engineer's day involves solving client problems. Mechanical engineering is often figuring out how to make mechanical or thermal devices work better, more efficiently or have different capabilities.
- **Design:** mechanical device projects
- Develop, design calculations
- Knowledgeable in the machining and fabrication process
- Work in 3D design: (computer-aided design, or "CAD")

BASIC HARD SKILLS REQUIRED FOR A COMPUTER ENGINEER

- **Mathematics**: Computers all run on data, which is basically mathematics in its purest form. Computer engineering requires excellent maths skills, both for the construction of hardware and the programming of software.
- **Software Engineering**: as a computer engineer, a good deal of their work will be performed by the software on their computers. They need to know how to design a program, write the code, and then test the software for bugs. They need to know how to write scripts, software test procedures, compatibility, and MORE - all related to software.

- **Hardware Experience:** To know how a computer is built, as well as the various components that go into the computers. This doesn't just apply to Windows computers, but also Macs and any computers that run open-source OSs like Linux.
- **Programming Languages:** computer engineers are required to do a lot of low-level system and hardware programming that is not as user-friendly as programming in languages like Python or Java. They need to have excellent knowledge of languages like Perl, C++, C and Assembly just to name a few.

WHAT ARE SOFTS SKILLS?

- Interpersonal (people) skills. These are much harder to define and evaluate. Soft skills include communication skills, listening skills, and empathy, among others.

- Soft skills are the personal attributes, personality traits, inherent social cues, and communication abilities needed for success on the job. Soft skills characterize how a person interacts in his or her relationships with others.

- Unlike hard skills that are learned, soft skills are similar to emotions or insights that allow people to "read" others. These are much harder to learn, at least in a traditional classroom. They are also much harder to measure and evaluate.

EXAMPLES OF SOFT SKILLS

Adaptability: If you are a person who learns quickly, it is because you know how to adapt.

Communication: the ability to communicate effectively with other people.

Creative thinking: Being able to come up with something new

Teamwork: the ability to work well with others

Positivity: the ability to see the positive side of any issue.

Time management: the ability to work within deadlines

Problem-solving: the ability to analyse the causes in some situations and evaluate the best solutions.

Critical thinking: the ability to analyze information objectively and make a reasoned judgment.

BASIC SOFT SKILLS REQUIRED IN ALMOST ALL ENGINEERING FIELDS

Very often, engineers focus only on their technical skills and abilities, largely ignoring soft skills. Soft skills, however, are very important in almost all roles and industries. The following are among the important soft skills for engineers.

- **Communication**:

Communicating complex technical solutions in a way that clients understand is becoming increasingly important.

- **Problem-Solving**

Problem-solving usually involves successfully considering the pros and cons of each solution and finding the path with the least risk involved.

- **Organisation**

In some situations, one can classify organisational skills as technical rather than soft. For example, good code needs to be well structured and organised. That said, there are also organisational skills you should improve that are non-technical. These include punctuality, task management, and not taking on more tasks than you can handle. One example of something you can work on is avoiding the temptation to get lost in your work as, when you do, project deadlines often suffer

- **Leadership**

A good definition of leadership as a soft skill is taking responsibility for yourself and also for the people you work alongside

- **Teamwork**

There are many engineering tasks that you will do alone. Writing code is a good example. Individuals can't complete large engineering projects alone, however. Instead, they require teams and, by extension, teamwork.

- **Adaptability**

With rapidly advancing technology, the reality of clients changing requirements, the increasing use of agile development techniques, and other factors, adaptability is an essential soft skill to improve.

- **Creativity**

In engineering, creativity is about finding new ways of looking at things. By developing this valuable soft skill, you'll be able to, for example, develop innovative products or project solutions. Creativity can also help you solve a problem or successfully deal with an unexpected situation.

- **Customer Service**

Finally, giving customers more than they expect helps to nurture long-term and loyal relationships. After all, customers are crucial to the success of most businesses.

WHY SOFT SKILLS ARE IMPORTANT IN ANY TYPE OF JOBS?

- Soft skills differentiate the best candidate from a good candidate. In this competitive world, recruiters are looking for candidates who can lead the organization towards greater success. Soft skills are not only useful in facing the external crisis, but these also play a crucial part in interacting with your colleagues. A productive and healthy environment can only be sustained if everyone in the workplace is cooperative and have good relationships with their colleagues. Without a positive interaction, this goal is not achievable.

- The ability to work under pressure with a positive attitude is the need of every organization. The world is competitive enough to make your run towards your dream. Mere walking will not be going to help you to carve your future. And there is no surprise that with competition comes “pressure”. The pressure of completing a task within the deadline, the pressure of reaching the top, the pressure of generating revenue and so on. The ability to deal with the pressure is highly desirable in the market place.

WHICH SKILLS ARE IMPORTANT IN THE WORKPLACE? HARD OR SOFT?

- Both skills are important in their unique way. Generally, people ignore the essential soft skills which we need to excel in the profession. This is because of the lack of awareness about the benefits of soft skills in building your career.
- While applying for a job, your knowledge about different hards skills might help you get that job, however if you lack some of the basic soft skills you may easily lose that job.
- For example, if you are good at technical skills but you can not communicate your value in a job interview then it will reach you nowhere, if you are good at soft skills but when it comes to implementing the project and you can not deliver the deliverables then you are failed. Then both are important.

THANK YOU